1. (currently amended) An apparatus for controlling data flow through a network, the apparatus comprising:

one or more processors;

memory coupled to at least one of the one or more processors; and

a plurality of time-based queues logically configured on the memory and together defining a period of time with each time-based queue defining a separate increment of time within the period of time, whereby each time-based queue is set to dequeue all of its contents at a separate time, every time that a specified increment of time elapses,

wherein the processor is configured or designed to direct (i) data or (ii) grants to transmit data to particular time-based queues based upon network traffic shaping delays prescribed for the data or grants to transmit the data,

wherein each time-based queue is configured to dequeue ~~one or more~~ more than one packet.

2. (original) The apparatus of claim 1, wherein the apparatus is a router.

3. (original) The apparatus of claim 1, wherein the apparatus is a cable modem termination system.

4. (original) The apparatus of claim 1, wherein the separate increments of time defined by the time-based queues are each of the same length.

5. (original) The apparatus of claim 1, wherein the separate increments of time defined by the time-based queues are configurable.

6. (original) The apparatus of claim 1, wherein the period of time defined by the plurality of time-based queues are configurable.

7. (original) The apparatus of claim 1, wherein the one or more processors are further configured or designed to determine network traffic shaping delay.

8. (original) The apparatus of claim 1, wherein the one or more processors are further configured or designed to discard data or a request to grant transmission of data if a network traffic shaping delay is greater than the period of time defined by the plurality of time-based queues.

9. (original) The apparatus of claim 1, wherein the one or more processors are further configured or designed to transmit, without buffering in a time-based queue, the data or issue grants to transmit data if there is no network traffic shaping delay.

10. (original) The apparatus of claim 1, wherein the one or more processors are further configured or designed to direct network packets of varying sizes to the time-based queues.

11. (original) The apparatus of claim 1, wherein the apparatus is configured or designed to simultaneously buffer, in a single time-based queue, data or grants to transmit data from a plurality of network nodes.

12. (currently amended) An apparatus for controlling data flow through a network, the apparatus comprising:

traffic shaping means for determining how long to buffer data or grants to transmit data; and

buffering means for buffering the data or grants to transmit data in a plurality of time-based queues together defining a period of time, with each time-based queue defining a separate increment of time within the period of time, whereby each time-based queue is set to dequeue all of its contents at a separate time, every time that a specified increment of time elapses,

wherein each time-based queue is configured to dequeue ~~one or more~~ more than one packet.

13. (original) The apparatus of claim 12, wherein the traffic shaping means also directs the data or grant to transmit data to particular time-based queues based upon a determined length of time for buffering.

14. (original) The apparatus of claim 12, further comprising a policing means for determining whether to buffer the data or grants to transmit data.

15. (previously presented) A method of controlling data flow through a network, the method comprising:

determining that transmitting additional data to or from a network node will breach a policy for the network node;

selecting one of a plurality of time-based queues that together define a period of time, with each time-based queue defining a separate increment of time within the time period, whereby each time-based queue is set to dequeue all of its contents at a separate time associated with its increment of time, every time that a specified increment of time elapses; and

buffering the additional data or a grant to transmit the additional data in the selected one of the plurality of time-based queues,

wherein at least some times when de-queuing of all its contents, a time-based queue dequeues more than one packet.

16. (previously presented) The method of claim 15, further comprising receiving data addressed to the network node prior to determining that transmitting additional data will breach the policy, and wherein the data addressed to the network node is the additional data.

17. (previously presented) The method of claim 15, further comprising receiving data sent by the network node prior to determining that transmitting the additional data will breach the policy, and wherein the data sent by the network node is the additional data.

18. (previously presented) The method of claim 15, further comprising calculating a network capacity used by the network node if the additional data was to be transmitted, the calculation being performed prior to determining that transmitting the additional data will breach the policy.

19. (original) The method of claim15, further comprising determining a delay until the additional data can be transmitted, wherein the determined delay is used to select the time-based queue.

20. (original) The method of claim 19, wherein the time-based queue is selected by matching its time to dequeue with the delay determined for the additional data.

21. (original) The method of claim 15, further comprising:

dequeuing the additional data; and

transmitting the additional data without exceeding the maximum allowed data flow for the network.

22. (previously presented) The method of claim 15, further comprising:

receiving new data that does not form part of the additional data;

determining that transmitting the new data will breach the policy;

determining a delay until the new data can be transmitted without exceeding the maximum allowed data flow for the network node; and

determining that the delay is sufficiently long that the new data is discarded without buffering in the time-based queues.

23. (original) The method of claim 15, wherein the separate increments of time defined by the time-based queues are each of the same size.

24. (original) The method of claim 15, wherein the increments of time defined by the time-based queues are configurable, and wherein the period of time defined by the plurality of time-based queues is configurable.

25. (previously presented) A computer program product comprising a machine-readable medium on which are stored program instructions for controlling data flow through a network, the program instructions comprising:

determining that transmitting additional data to or from a network node will breach a policy for the network node;

selecting one of a plurality of time-based queues that together define a period of time, with each time-based queue defining a separate increment of time within the time period, whereby each time-based queue is set to dequeue all of its contents at a separate time associated with its increment of time, every time that a specified increment of time elapses; and

buffering the additional data or a grant to transmit the additional data in the selected one of the plurality of time-based queues,

wherein at least some times when de-queuing of all its contents, a time-based queue dequeues more than one packet.

26. (previously presented) The computer program product of claim 25, further comprising program instructions for calculating a network capacity used by the network node if the additional data was to be transmitted, the calculation being performed prior to determining that transmitting the additional data will breach the policy.

27. (previously presented) The computer program product of claim 25, further comprising program instructions for:

receiving new data that does not form part of the additional data;

determining that transmitting the new data will breach the policy;

determining a delay until the new data can be transmitted without exceeding the maximum allowed data flow for the network node; and

determining that the delay is sufficiently long that the new data is discarded without buffering in the time-based queues.

28. (previously presented) A computer program product comprising a machine readable medium on which is provided program instructions for controlling data flow through a network, the program instructions comprising:

program code for determining that transmitting additional data to or from a network node will breach a policy for the network node;

program code for selecting one of a plurality of time-based queues that together define a period of time, with each time-based queue defining a separate increment of time within the time period, whereby each time-based queue is set to dequeue all of its contents at a separate time associated with its increment of time, every time that a specified increment of time elapses; and

program code for buffering the additional data or a grant to transmit the additional data in the selected one of the plurality of time-based queues,

wherein at least some times when de-queuing of all its contents, a time-based queue dequeues more than one packet.

29. (canceled)

30. (currently amended) An apparatus for controlling data flow through a network, the apparatus comprising:

means for determining that transmitting additional data to or from a network node will breach a policy for the network node;

means for selecting one of a plurality of time-based queues that together define a period of time, with each time-based queue defining a separate increment of time within the time period, whereby each time-based queue is set to dequeue all of its contents at a separate time associated with its increment of time, every time that a specified increment of time elapses; and

means for buffering the additional data or a grant to transmit the additional data in the selected one of the plurality of time-based queues,

wherein each time-based queue is configured to dequeue ~~one or more~~ more than one packet.